

Protecting human health in a changing world: the role of social and economic development

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The biological and physical environment of the planet is changing at an unprecedented rate as a result of human activity, and these changes may have an enormous impact on human health. One of the goals of human development is to protect health in the face of rapid environmental change, but we often fail to do this. The aim in this paper is to distinguish between socioeconomic aspects of development that are likely to be protective and those that are likely to increase vulnerability (the capacity for loss resulting from environmental change). Examples include climate change in the Pacific. We conclude that protecting human health in a changing world requires us to take steps to minimize harmful change wherever possible, and at the same time to be prepared for surprises. The goals of mitigation (reducing or preventing change) and adaptation (response to change) are not mutually exclusive. In fact, steps to make populations more resilient in the face of change are often similar to those that are needed to lighten the load on the environment. We need social policies that convert economic growth into human development. Wider application of sustainable development concepts is part of the solution. In particular, there is a need to promote health as an essential asset of poor and vulnerable populations. It is their key to productivity and to surviving shocks; it is also the key to achieving broader development goals such as universal education. For these reasons it is in the interests of all sectors — economic, social and environmental — to play their particular roles in protecting and improving health.

Keywords: Fiji; environmental health; development; socioeconomic factors; sustainability; exposed population.

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Introduction

The changes occurring in the biological and physical environment of the planet as a result of human activity may have an enormous impact on human health. To some extent these changes are unavoidable because in the past we have seriously overloaded the environment, and the consequences have not yet become fully apparent. For example, past emissions of carbon dioxide and other greenhouse gases and long-lasting ozone-depleting compounds in the stratosphere will continue to have effects for decades to come. Moreover, unexpected, rapidly occurring threats to health are more likely to emerge in the future as a result of the strains now placed on the ecological systems that sustain human life. The processes in these systems are nonlinear, which means that if pressures increase we may face

surprises. For example, continued warming of the sea surface due to the greenhouse effect may at some point cause deep sea currents to change direction, leading to dramatic changes in regional climates.

Human development has many goals, one of which is to protect human health in the face of rapid environmental change. Unfortunately, we often fail to attain this goal. This article aims to distinguish between socioeconomic aspects of development that are likely to be protective with those that are likely to increase vulnerability (the capacity for loss resulting from environmental change). As a case study, we examine the major threats to health faced by the Pacific island nation of Fiji. Finally, we introduce the concepts of sustainability and sustainable livelihoods, and give examples of how development based on these ideas can lessen vulnerability to poor health.

Vulnerability and adaptation

Vulnerability has many definitions, including “increased probability of adverse outcomes for a given environmental exposure” and “the capacity for loss”. Vulnerability is concerned with what might happen in the future, and is specific to a particular resource or asset that is threatened. Communities that are most vulnerable to loss of economic assets, for example, may not be those that are most vulnerable to other kinds of loss: indeed there may be an inverse relation, since economic wealth often provides the means to

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protect populations from natural disasters and other environmental threats. In this paper we are particularly interested in vulnerability to disease and injury due to environmental change.

Vulnerability implies a problem, whereas “sensitivity”, the degree to which a system is influenced by external change, may have negative outcomes but may also be a positive attribute. Vulnerability may be due to a lack of robustness (inability to withstand external pressures), or to a lack of resilience (failure to recover from impact). Adaptation means responding to challenge in a positive fashion. In this setting, adaptation might be considered to be the steps that are taken to reduce the likelihood of future losses (and if possible, maximize potential gains) due to a particular environmental threat. For example, the Intergovernmental Panel on Climate Change (IPCC) has suggested that the general categories of adaptation to climate change include “retreat”, “protection” and “accommodation” (1). These concepts may apply to individuals, households, countries or, on an even larger scale, to regions or the entire globe. However, the factors that most strongly influence health at one level of aggregation may not be the same ones as at another.

What makes populations vulnerable to poor health? In very broad terms, the causes of vulnerability include biological factors, aspects of the physical environment and factors that are socially determined. It is impossible to demarcate these categories exactly, but an attempt to allocate causes will indicate where there may be opportunities for adaptation. Biological factors, for instance, are often fixed or relatively difficult to alter. An example of a fixed attribute is skin pigmentation — fair-skinned individuals are vulnerable to skin damage and skin cancers following exposures to solar radiation, and “retreat” and “protect” are the only adaptation strategies available. On the other hand, a biological factor that may be amenable to change (and, it should be noted, is a characteristic of populations not individuals) is herd immunity. Populations with low levels of immunity are vulnerable to outbreaks of infectious disease if the environment changes and conditions are favourable for the introduction of pathogens. In this instance, immunization may be a desirable adaptation strategy.

The clearing of native forests is an example of the type of change in the physical environment that may seriously increase the likelihood of losses, either economic, ecological or health-related. It increases susceptibility to flooding: run-off is typically less and occurs at a slower rate in sites that have retained native vegetation. In contrast, the falling casualty rate following cyclones in some countries bordering the Pacific is likely to be a consequence of both improvements in the physical environment and social changes. Improvements to the physical environment, for example, the standard of housing, have been made in both Japan and the Republic of Korea. However, the major underlying causes of reduced vulnerability to extreme weather events have been

social changes leading, for example, to better public education, more effective urban planning and greater investment in public services, including disaster planning and civil defence (2).

Pacific islands

The Pacific island states are particularly vulnerable to the extremes of weather. Following Cyclone Kina, for example, which caused 23 deaths in Fiji in 1993, the damage was so severe that more than 100 000 people were dependent on food aid for up to three months (3). In Solomon Islands, the impact of cyclones in terms of flooding and consequent mud slides is thought to have been much more severe since the logging of the native forests began in the 1980s. The adverse effects of cyclones and other climatic extremes are felt most acutely by poor people and especially those in rural areas where the physical infrastructure is not well developed.

Global warming due to increasing concentrations of carbon dioxide and other greenhouse gases in the atmosphere is forecast to cause rising sea levels and (with less certainty) more frequent and more intense extremes of weather (4). A striking feature of the Pacific is the mismatch between regional contributions to greenhouse emissions, which is no more than 1–2% of the global total, and vulnerability to harm as a result of climate change, which is very high. This means that Pacific states can do little themselves to mitigate the problem, but must invest heavily in adaptation. To some extent the fragility of the region is inherent. For example, geography plays a big part in shaping the effects of sea-level rise. Many populations in the Pacific are on the physical margins of sustainable settlement, and the combined effects of coastal erosion, rising salinity, reduced rainfall and inundation threaten the viability of some island states (5). The ecological landscape is also unusually susceptible to harm. The long-standing isolation of many Pacific countries from the main continental land masses has meant that ecological systems have evolved in unique ways. These island ecosystems have been called “eccentric corners of the evolutionary process” (6). A consequence of this isolation is susceptibility to introduced species, which face little competition for food and space. New Zealand, one of the most isolated countries of all, has suffered particularly from the depredations of imported pests, which include a number of species that may carry serious human diseases (7).

Vulnerability is only partly determined by geography and history. The care with which coastal areas are managed will make a difference to the consequences of sea-level rise, and the frequency of vector-borne disease outbreaks depends on, among other factors, the competence of border control measures. From a practical point of view, the most important causes of vulnerability are those that are socially determined because they are frequently the causes that can be modified most readily in the short term. As examples, we consider two social phenom-

ena that may strongly affect the “capacity for loss”: urbanization, and the increasingly unequal distribution of resources within and between countries in the Pacific.

Urbanization

The large-scale movement of populations to cities and urban conurbations is in no way unique to the Pacific, but it is now a prominent feature of development in this region even in places such as Micronesia and Papua New Guinea which, until recently, had no urban settlements at all. Some isolated places, for example, South Tarawa in Kiribati, have population densities in very fragile ecosystems that exceed those in the urban areas of industrialized countries (Table 1) (8). Although the definition of “urban” living varies from one data collection to another, it is clear that the growth of urban populations outstrips national population growth in almost all countries.

There are many benefits of city living, such as opportunities for economic advancement and education. Urbanization in England in the 19th century, for example, made it possible for public institutions and infrastructure to develop, and this contributed substantially to the decline in mortality that occurred in the late 1800s (9). However, the way in which cities grow can also be to the detriment of health and well-being. Two examples that are particularly relevant to climate are the tendency for densely built cities to act as “heat islands” (10, 11), to the disadvantage of citizens who cannot afford the protection of air conditioning, and the growth of squatter settlements around many cities, in which the housing stock is generally inappropriate, crowding is severe and the physical location hazardous. Lack of basic sanitation and other services leads to increased risks of flooding, storm damage and many vector-borne diseases.

Unequal distribution of resources

Vulnerability, in simple terms, is the product of factors that influence access to power and resources (12). These factors include individual characteristics such as age, gender and ethnicity. They also include characteristics of the society in which individuals are located. For example, while lack of income makes it difficult for individuals to deal with environmental hardship, a highly unequal distribution of economic resources within a population may also be a cause of vulnerability. There is evidence from many countries that the distribution of income, regardless of its average level, is associated with national mortality rates. Of all age groups, children under one year are particularly sensitive to environmental hazards, and we have recently reported data showing that the relation between infant mortality and economic development (measured by gross domestic product (GDP)) per capita varies according to how equally income is distributed (13). In general, mortality rates are lower in richer countries, but for a given GDP per head, infant mortality rates tend to be lower in

countries with more equal income distributions (Fig. 1). The curve relating average GDP to infant mortality soon flattens out with increasing wealth, but the distribution effect applies across the full range. If these associations are causal, the implication is that high-income countries will achieve greater gains in population health status by making income distribution equal than by increasing the average.

How could the distribution of income affect the vulnerability of a population to losses resulting from environmental change? There may be direct effects of wide inequalities in wealth resulting from the increased number of people living in impoverished conditions. Effects may also be due to relative poverty, caused by the social exclusion that occurs when groups fall far short of the norm in a given society (14). Wide inequalities may erode the trust, cohesion and “social capital” that are required for the smooth running of any group (15). We know of no work relating income inequalities to the health impact of climate change, but such a relation may well exist. Social cohesion and interconnectedness are important determinants of famine, which is often climate-related (16). Groups that have little influence over the decision-making processes of their community are more susceptible to losses caused by earthquake, floods and other disasters, and also have greater difficulty in recovering from these events (17). Work in the USA has shown that people living in communities with wide inequalities in income are less likely to be involved in “public good” initiatives (18), and this might extend to aspects of civil defence and other social responses to climatic extremes.

When there are marked inequalities, those who are disadvantaged may lack the resources to participate in the social and economic mainstream of society (19). The same is true in relations between countries: wide disparities of wealth and power mean that poorer nations are excluded from international affairs. Apart from moral considerations, exclusion is costly; it is inefficient since it represents a loss of potential resources; and it is unsafe because individuals and countries that are out of the mainstream do not have a stake in national and international security (20).

Inequalities in income are increasing in the Pacific and the rapid shift to cash economies has resulted in wealth inequalities that were not experienced previously. One particularly striking example is Bougainville, Solomon Islands, where development of the Panguna copper mine has resulted in large differentials in wealth in the region (21). In many countries, income differentials are opening up as the result of deliberate economic policies. In New Zealand, for example, the only real growth in disposable incomes over the last decade has occurred among the most wealthy households (those in the top decile), largely as a result of reductions in welfare benefits, and tax changes that have favoured high earners (22). Very little information is available on income distributions within Pacific countries, but differences in average incomes between countries in

the Pacific are large and growing (23). It is not of course money itself that improves health, but the services and amenities that money buys. These include health care services, but even more important in most parts of the Pacific are investments in water supplies, drainage, housing, education and transport.

Climatic and political factors

Vulnerability is not confined by national boundaries, as illustrated by the example of El Niño-related drought, which contributed to widespread forest fires, food shortages and political turmoil in south-east Asia in 1997 and 1998 (24). The impact on human health included increases in cardiovascular and respiratory diseases as a result of air pollution from forest fires, nutrition-related diseases because of food shortages, and deaths and injuries in civil disturbances caused by economic and political unrest. The most immediate, visible aspect of the crisis was widespread air pollution resulting from the deliberate starting of fires for land clearance. Local farmers and land owners took advantage of unusually dry conditions to clear land for planting crops (thus, the fires were only indirectly "caused" by El Niño). The fires spread out of control to many areas in Kalimantan (Borneo) and Sumatra in late 1997 and early 1998, with serious ecological, economic and health consequences in Indonesia and surrounding countries, particularly Malaysia and Singapore. The cost of the fires in terms of air pollution-related health problems, loss of revenue from industry, agriculture and tourism, and damage to natural resources has been estimated at over US\$ 4.4 billion (25).

The social causes of Indonesia's vulnerability include rapid population growth, migration and extension of human settlements into areas that can barely sustain intensive agriculture and are exposed to risks of storms and flooding (26). Political causes include weak natural resource management, related to a poorly resourced public service, political corruption and lack of accountability. The country's natural resources have been exploited without regard for the long-term social and environmental consequences. Fire has always been a feature of the dry season as farmers clear land for cultivation, but in the 1990s there was a significant increase in large-scale land-clearing activities using fire by plantation companies seeking to plant oil palms. According to Indonesian government statistics, 4.1 million hectares of "forest land" have been converted to plantations in the last 20 years (27).

The drought of 1997–98 brought social and environmental injustices to the attention of the Indonesian people, contributing to the crisis that eventually led to the removal of President Suharto. In this instance, environmental damage, economic instability and social unrest reinforced one another.

International perspective

In the long term, human health is entirely dependent on the continued functioning of Earth's natural

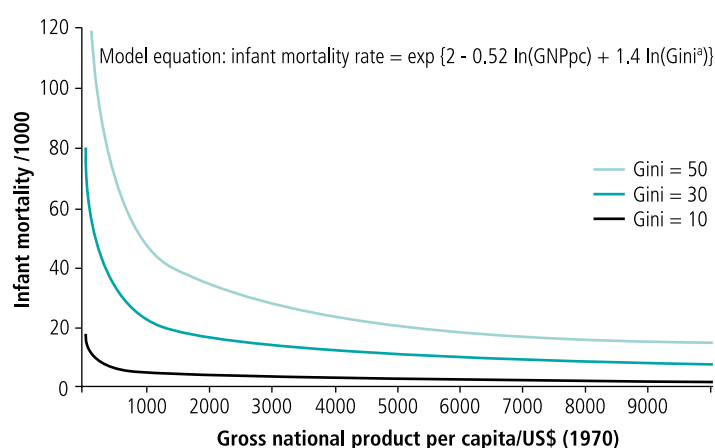
Table 1. **Growth of urban populations in five selected Pacific Island states** (36)

Country	Population in urban areas (%)		Urban annual growth, 1990s (%)
	1970s	1990s	
Cook Islands	27	61	2.1
Fiji	37	42	2.5
Papua New Guinea	11	17	3.9
Solomon Islands	10	18	6.3
Tonga	27	43	3.4

systems (28). This means that human development is not sustainable unless it is ecologically sustainable. However, we focus here on economic factors, since development is still widely regarded as synonymous with economic growth.

The past three decades have shown that economic growth alone does not guarantee good health for all. In global terms, the gap between the richest and poorest countries has widened substantially. At the same time, the changes observed in Fiji (see Box) are occurring in many other countries: increasingly, global and poorly regulated economic activity is exerting significant effects on the environment and on the health of populations. These effects include pollution, depletion of the earth's life-support systems and climate change. It is poor people, particularly women and children, who bear the burden disproportionately. There is an urgent need to halt these negative trends and to harness the opportunities provided by globalization for the public good, including protection and improvement of public health.

Fig. 1. **Infant mortality rate in relation to absolute and relative income: 1970 data for 38 countries**



^aThe Gini coefficient is a measure of income distribution; higher values indicate more unequal distribution.

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Fiji

Social and economic development in Fiji over the last 40 years has resulted in substantial health improvements. For example, life expectancy at birth was 72 years in 1996, compared with 59 years in 1960; similarly the infant mortality rate in 1996, at 20 per 100 000 live births, was less than one-third of the 1960 figure (29). However, the rate of improvement in many of these health status indices has slowed down and in some instances there has been little change in recent years, in part due to the increasing burden of noncommunicable diseases. The age-standardized mortality rate from ischaemic heart disease, for example, has increased fivefold in the last 20 years and has been the principal contributor to the plateauing and decline in the life expectancy of certain population groups in the country (the fall in life expectancy over the 1986–1996 period was 20% greater in Indo-Fijians than in Fijians) (30). It is not known how far these adverse trends can be related to social factors. There are no data, for instance, on trends in income distribution in Fiji. Uncertainty, harassment and dispossession following the overthrow of elected governments may have contributed: suicide due to paraquat ingestion (the cause of over 90% of all suicide deaths in Fiji) was 70% higher in the year of the Rabuka coups (1987) and the year following than for the period 1981–1998 (R. Azam, personal communication).

Recent years have seen significant changes in the physical and social environment of Fiji, consistent with global trends. The proportion of the national population living in urban areas has risen from 35% in 1970 to 41% in 1995 and is expected to reach 50% by 2015 (28). This shift has increased the numbers of people participating in the cash economy and, for many, has improved access to important services such as schooling and health care. There has also been a marked increase in violence (especially domestic), crime, poverty and alcohol and substance misuse, however, which has resulted largely from social dislocation. The possible loss of social cohesion as a consequence of shifting populations and political uncertainty is a matter of concern as it not only contributes to social unrest but may compromise the ability of communities to respond to public health challenges. For instance, the attempted coup in May 2000 paralysed the public health response to an outbreak of leptospirosis in the capital, Suva.

The degradation of the physical environment due to increasing urban settlement in Fiji has also had adverse effects on human health. A striking example is the proliferation of the mosquito *Aedes albopictus*, one of the vectors responsible for the major dengue epidemic of 1997–1998 (31). The proliferation of the mosquito was largely attributable to the presence of multiple breeding sites associated with high density ribbon development especially around Suva.

Industry and tourist activities have been concentrated in coastal areas. Much of the coastal fringe of the major islands in Fiji comprises mangroves, and the loss of this vegetation is important, not only in terms of loss of a natural home for fish and aquatic mammals, but also because of the protection mangroves provide against the sea, especially in the event of cyclones and tsunamis. Such changes in coastal areas increase the vulnerability of Fiji to the effects of a rising sea-level and increased storm activity resulting from global climate change.

There is currently no regular collection of data on the quality and integrity of the environment in Fiji. The data that exist are sporadic and collected by a variety of different agencies. Such uncoordinated institutional arrangements impair the ability of the country to respond to rapid environmental change. The environment is covered by 25 acts of parliament administered by 14 different ministries or statutory bodies. A positive note is the recent enactment of locality-specific legislation, such as The Ports Authority of Fiji Act, which regulates marine pollution in Fiji's major ports.

Development aid is a major contributor to the Fiji economy. In recent years, the emphasis in development assistance has shifted to management processes in health and other sectors. If this new approach is to yield health gains, it will need to proceed in tandem with an improved understanding and recognition of the links between wider development issues and health gain. There needs to be recognition not only of the fragile nature of many ecosystems in the Pacific, but also the fragile nature of the human infrastructure. Both the local ecology and local human resources run the risk of being overwhelmed by development initiatives, many of which have an increasingly commercial focus. Experience from elsewhere, including Europe, has demonstrated that reforms must also have an explicit health equity goal. Without it, reform becomes an end in itself, usually pursuing narrow concerns about efficiency (32).

There has been a significant shift in development thinking since the World Summit on Social Development in 1995. There is now much greater recognition of the need to reconcile social, economic and environmental policy in favour of so-called people-centred development. Current development thinking is captured in the concepts of sustainable human development and, increasingly, sustainable livelihoods. Both focus on the fundamental importance of building up and protecting the capabilities of human beings. Economic growth must be recognized as a means to achieving that, rather than as an end in itself.

This shift in thinking is apparent in the World Bank's annual report for 1999 (23). The Bank acknowledges that the number of people living in poverty worldwide is increasing, despite the economic successes of some of the richest countries. Income and wealth do not "trickle down" according to some inexorable economic equivalent of the law of gravity. The way forward, according to the Bank, must be guided by human needs and not narrow

economic theory, must build and sustain institutions, and must be socially inclusive. This last point is a key one: the stability that permits sustained human and social development depends on a society in which all members can participate. The form that participation takes will vary from one country to another. However, key features of inclusive societies are political and civil rights, which permit the open formation of community values and give the most disadvantaged a public voice (33).

The concept of sustainability and sustainable livelihoods emerged from the work of the Brundtland Commission and then Agenda 21. The sustainable livelihood approach, which sets out to assess the links between specific local settings and national economic and social policies with a view to optimizing their positive effects on livelihoods, offers a valuable framework within which to define the contributions of improved health to human development and vice versa. The ultimate objective of human development is improvement of the human

condition, of which enjoyment of good health is an essential part. The capacity to develop is, however, itself dependent on good health.

Good health is one of the most precious assets of any population, but it is particularly important for populations that are poor and vulnerable. A fit, strong body is the key to productivity. When “breadwinners” suffer serious ill health or injury, entire households can suffer, not only because of loss of income but also as a consequence of the high direct cost of medical care, a common cause of impoverishment in itself. The protection and improvement of the health of poor and vulnerable populations is central to the entire process of poverty reduction and human development. As such, it should be a goal of development policy shared by all sectors — social, economic and environmental.

Efforts to protect and improve health are left mostly to the health sector. Yet the major determinants of ill health, including poverty, lack of education, and environmental degradation, are beyond the direct control of health services. Development experts often acknowledge the contribution of good health to building individual capabilities (human and social capital) but they are often not aware of the ways in which this can be brought about. New approaches are needed to combine poverty reduction, health protection and health promotion measures more effectively. Experience from the Caribbean has shown that policies to reduce social vulnerability to economic and health losses from environmental hazards require: close collaboration between the public and private sectors; integrated approaches to development rather than isolated single programmes; and, reflecting the World Bank’s conclusions, supporting institutions that nurture social solidarity and cohesion (34, 35).

How can the principles of sustainable development be put into effect? The Brundtland report provides an outline of the actions needed (36). A series of international conferences on future international development policy over the next three years will tackle the issue of organizing and regulating global economic and financial forces. These include the five-year follow-up to the World Summit on Social Development (Geneva, June 2000), Financing for Development (2001) and the ten-year follow-up to the Earth Summit, Rio plus Ten (2002). There are encouraging signs that health is being included not just as an end in itself, but also as a means to other social, economic and environmental objectives.

Conclusion

What can be done to protect human health in a changing world? The answer is twofold: minimize

harmful change wherever possible; and be prepared for surprises. The goals of mitigation (reducing or preventing change) and adaptation (response to change) are not mutually exclusive — in fact, steps to make populations more resilient in the face of change are often similar to those that are needed to lighten the load on the environment. Planting forests in water catchment areas is an example of such a “win/win” response to the threat of global climate change. It is clear, however, that mitigation alone will not be sufficient to cope with climate change: past emissions have committed the world to a period of accelerated warming. Growing populations, spreading settlements and rising expectations mean that there is more at stake than ever before. Vulnerability to disease and injury resulting from environmental change varies widely. We know, in general terms, which populations and which locations are most at risk. Current health status provides a guide, since individuals and groups with poor health are in a weak position to deal with adversity in the future. However, there are other important causes of vulnerability that may not be reflected in present health statistics. Geographical location is an example: at present, populations in the Pacific are relatively healthy compared with those in many other developing countries, but the Pacific is very susceptible to losses resulting from sea-level rise and other manifestations of global climate change. It is important that we develop and apply measures of vulnerability that are neither simplistic nor impossibly complex, to assist in identifying those communities most in need of proactive measures to avoid future, negative health consequences.

Measures to protect health include physical interventions (such as sea walls and early warning systems for tropical storms) and also social policies that convert economic growth into human development. Wider application of sustainable development concepts can provide part of the solution. In particular, there is a need to promote the view of health as an essential asset of poor and vulnerable populations: their key to productivity and to surviving shocks and also a key to achieving broader development goals such as universal education. It is in the interests of all sectors — economic, social and environmental — to play their particular roles in protecting and improving health. Globalization must be harnessed to this end: it cannot happen by itself. As Amartya Sen puts it, “much will depend on what use we can make of the vast opportunities offered by the market economy, democratic politics, an independent media, social arrangements for equity and public provisions for human security” (33). ■

Résumé

Protéger la santé humaine dans un monde en pleine mutation : rôle du développement économique et social

Le monde évolue à un rythme sans précédent. Par ses activités, l'homme exploite au maximum l'environnement biologique et physique de la planète et, dans certains cas, la capacité de l'environnement à absorber la production humaine a été dépassée. Le changement climatique et la diminution de la biodiversité en sont deux exemples. Les spécialistes de l'environnement soulignent la nouveauté de ces changements, la rapidité avec laquelle ils se produisent et les possibilités de surprises à l'avenir (des résultats qui sont qualitativement différents de ceux qu'on peut escompter). Les effets sur la santé des populations dépendent en partie du niveau de développement social et économique. Dans cet article, nous examinons les aspects des modifications socio-économiques qui sont susceptibles d'avoir une action protectrice et nous les opposons aux changements qui risquent d'accroître la vulnérabilité. Dans ce contexte, la vulnérabilité est la tendance pour une population à subir des pertes par suite de menaces environnementales. Des exemples d'éléments positifs du développement social sont la protection de l'environnement (prises d'eau, gestion des zones côtières) et la mise en place de services de santé publique complets. La prospérité rend le développement possible, mais en soi, la croissance économique ne garantit pas la sécurité de la santé. La distribution de la richesse et des revenus joue aussi un rôle important. Par exemple, des comparaisons internationales montrent que la mortalité infantile dans les pays développés est liée plus étroitement au degré d'inégalité des revenus qu'au revenu moyen. Nous en concluons que la protection de la santé dans un monde en mutation exige une double réponse. Il faut prendre des mesures pour minimiser les changements néfastes partout où cela est possible, et aussi planifier pour faire en sorte que les populations soient prêtes à affronter les risques

envisageables. Les buts d'atténuation (réduire ou prévenir les changements) et d'adaptation (réagir aux changements) ne s'excluent pas mutuellement; en fait, les mesures à prendre pour permettre aux populations de mieux s'adapter aux changements sont souvent semblables à celles qui sont nécessaires pour alléger la charge qui pèse sur l'environnement. Par exemple, la plantation de forêts et l'extension du réseau de transports publics sont deux moyens tout aussi bénéfiques de faire face à la menace de changement climatique. En règle générale, nous avons besoin de politiques sociales qui transforment la croissance économique en développement humain. Lorsque les inégalités sont marquées, les défavorisés n'ont souvent pas les moyens de s'intégrer dans la société. Cela vaut aussi bien pour les individus que pour les pays. À part des considérations morales, l'exclusion entraîne une perte de ressources potentielles et l'insécurité (les individus marginalisés, par exemple, ne respectent pas l'ordre social). La solution consiste en partie à favoriser une plus large application des concepts du développement durable. Il s'agit de reconnaître l'importance fondamentale du renforcement et de la protection des capacités des êtres humains. Une bonne santé est un atout essentiel, en particulier pour les populations pauvres et vulnérables. Elle doit être considérée à la fois comme une cause et une conséquence du développement humain. La santé conditionne la productivité et permet de survivre aux chocs (c'est-à-dire de réduire la vulnérabilité), et elle est indispensable aussi pour réaliser des objectifs plus vastes de développement comme l'éducation universelle. C'est pour ces raisons qu'il est de l'intérêt de tous les secteurs – économique, social et environnemental – de protéger et d'améliorer la santé publique.

Resumen

Protección de la salud humana en un mundo en transformación: papel del desarrollo económico y social

El mundo está cambiando a un ritmo sin precedentes. Las actividades humanas están llevando al límite el entorno biológico y físico del planeta, y en algunos casos se ha sobrepasado la capacidad del ambiente para absorber los resultados de esas actividades. El cambio climático y la reducción de la biodiversidad son dos ejemplos de ello. Los ambientalistas resaltan lo novedoso de estos cambios, la rapidez con que están ocurriendo y el riesgo de futuras sorpresas (resultados cualitativamente distintos de los previstos). Las repercusiones en la salud de las poblaciones humanas dependen en parte del nivel de desarrollo social y económico. En este artículo examinamos los aspectos de los cambios sociales y económicos que probablemente tienen un efecto protector, contrastándolos con los cambios que probablemente tienden a aumentar la vulnerabilidad, entendiéndolos por tal la tendencia de una población a verse perjudicada por amenazas ambientales. Ejemplos de aspectos positivos

del desarrollo social son la protección del medio ambiente (captaciones de agua, ordenación de zonas costeras) y los servicios de salud pública integrales. La prosperidad posibilita el desarrollo, pero por sí mismo el crecimiento económico no garantiza la salud humana. La distribución de la riqueza y los ingresos también es importante. Por ejemplo, las comparaciones internacionales efectuadas muestran que la mortalidad de lactantes en los países desarrollados está más estrechamente relacionada con el grado de desigualdad de los ingresos que con el promedio de los mismos. Nuestra conclusión es que la protección de la salud humana en un mundo en transformación requiere una respuesta doble: se deben tomar medidas para reducir al mínimo los cambios perjudiciales cuando sea posible, y además es necesario establecer planes con antelación a fin de asegurar que las poblaciones estén preparadas para afrontar los riesgos que puedan preverse. La mitigación

(reducir o prevenir los cambios) y la adaptación (respuesta a los cambios) no son metas excluyentes; es más, las medidas destinadas a lograr que las poblaciones sean más flexibles ante los cambios son a menudo similares a las requeridas para reducir las presiones que sufre el medio. Por ejemplo, las plantaciones forestales y la ampliación de los sistemas de transporte público son dos respuestas doblemente provechosas ante la amenaza del cambio climático. En términos generales, necesitamos políticas sociales que conviertan el crecimiento económico en desarrollo humano. Cuando existen desigualdades marcadas, los desfavorecidos carecen a menudo de los recursos necesarios para participar en la corriente central de la sociedad, y eso se aplica tanto a los individuos como a los países. Dejando a un lado las posibles consideraciones morales, la exclusión hace que se pierdan recursos potenciales y

causa inseguridad (las personas marginadas, por ejemplo, no están comprometidas en el mantenimiento del orden social). Parte de la solución consiste en promover una más amplia aplicación de las ideas que encierra la noción de desarrollo sostenible. Eso significa reconocer la importancia fundamental de fomentar y proteger las capacidades del ser humano. La buena salud es un activo indispensable, en particular para las poblaciones pobres y vulnerables, y hay que ver en ella tanto una causa como una consecuencia del desarrollo humano. La salud es un factor clave para asegurar la productividad y para sobrevivir a las crisis (pues reduce la vulnerabilidad), y es la clave asimismo para alcanzar metas de desarrollo más amplias, como la educación universal. Por esos motivos, la protección y mejora de la salud pública no puede por menos que beneficiar a todos los sectores: económico, social y ambiental.

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